

REMARKS

Favorable reconsideration of the application is respectfully requested in light of the amendments and remarks herein.

Upon entry of this amendment, claims 1-38 will be pending. By this amendment, claims 1, 5, 11, 15, and 21 have been amended. It is noted that several typographical errors were made in the claims presented as original claims in the previous amendment filed April 15, 2003. These errors have been corrected so that the above claims labeled as original are the same as the claims as filed. These corrections include: in claim 4 correcting "in said data structure" to be -- in said table data structure --; in claim 5 correcting "data processing unit" to be -- data processing apparatus --; in claim 10 correcting "when sending source" to be -- when the sending source --; and in claim 26 correcting "when constitution a composite" to be -- when constituting a composite --. These corrections are not marked above because these corrections are not amendments to the claims.

§103 Rejection of Claims 1-2, 11-12, and 21

In Section 2 of the Final Office Action, the Examiner has rejected claims 1-2, 11-12, and 21 under 35 U.S.C. §103(a) as being unpatentable over Ryu et al. (U.S. Patent 5,572,733; hereinafter referred to as "Ryu") in view of Wold et al. (U.S. Patent 5,386,568; hereinafter referred to as "Wold"). This rejection is respectfully traversed below.

Regarding claim 1, as shown above, claim 1 has been amended and calls for:

1. A data processing apparatus for executing an object-oriented operating system made up of a plurality of objects among which

messages are communicated, said data processing apparatus comprising:

means for rendering an object, which has received a combining request message requesting addition of a predetermined object, to create a table data structure used for referencing to said predetermined object as a component object, and to initialize said table data structure with data of said component object, thereby constituting a composite object; and

means for creating a data structure of at least one said component object, registering the data structure in said table data structure, and registering a relationship between at least one message processing function possessed by said component object and a message interface for requesting the message processing function in the data structure of said component object;

wherein said composite object has a thread and each component object of said composite object uses that thread for communicating with one another.

Accordingly, in one aspect of claim 1, the means for rendering an object builds a composite object including one or more component objects by adding component objects. When the means for rendering an object receives a combining request message requesting addition of a predetermined object, the means for rendering an object creates a table data structure for referencing the predetermined object as a component object of the composite object and initializes the table data structure with data for the predetermined object. The composite object has a thread and each of the component objects for that composite object use that composite object's thread for communicating with the other component objects of the composite object. As a result, the operating system does not need to switch threads for communication between component objects of the same composite object.

Considering the Examiner's rejection of claim 1 in Section 2 of the Final Office Action as applied to amended claim 1, it does not appear that the arguments presented by the Examiner in rejecting claim 1 over Ryu and Wold in section 2 of the Final Office Action establish how the cited combination of Ryu and Wold shows or suggests amended claim 1. In rejecting claim 1 in

Section 2, the Examiner does not appear to argue that Ryu and Wold show the component objects of a composite object sharing a thread. However, in rejecting claim 3 in Section 3, the Examiner states: "However, Kavner teaches the same client thread executing on clients process 102/thread of execution." On page 8 of the Office Action, the Examiner states: "Kavner' reference teaches the processor of client and server have plurality applications which transfer messages by using the shared thread." If applied to amended claim 1, it does not appear that these arguments would explain how the cited references show amended claim 1. Even assuming for the sake of argument that the referenced portions of Kavner show multiple clients sharing a thread, it is submitted that multiple clients are not the same as multiple component objects of a composite object. Accordingly, it does not appear that the Examiner has explained how the cited portions of Ryu, Wold, and Kavner address that not only is a thread shared but that the shared thread is shared by the component objects of a composite object, as called for in amended claim 1. Without further explanation by the Examiner, it is submitted that the Examiner has not established how the cited combination of Ryu and Wold show or suggest this aspect of claim 1.

Accordingly, it does not appear that the Examiner has established how the cited combination of Ryu and Wold, as referenced by the Examiner in rejecting claim 1, shows or suggests at least these aspects of amended claim 1, and so it is submitted that the Examiner has not established how the cited combination of Ryu and Wold shows or suggests amended claim 1 as a whole. Claims 2-10 and 37 depend from claim 1, and it is also submitted that the Examiner has not established how the cited combination of Ryu and Wold shows or suggests claims 2-10 and 37, through their dependence on claim 1. Similar arguments apply to claims 11, 21, 22, 29, and 36, and so to claims 12-20 and 38 that depend from claim 11, claims 23-28 that depend from claim 22, and claims 30-35 that depend from claim 29.

In addition, on page 8 of the Office Action the Examiner states: "The term 'registering a relationship' is not clearly mentioned on the specification of the invention." It is submitted that this clause "registering a relationship" is supported by the specification. See, e.g., the discussion of storing values in an entry table described at pages 38-41 and Figure 6 and at pages 53-56 and Figure 13.

Based upon the foregoing, it is submitted that claims 1-2, 11-12, and 21 are not anticipated by nor rendered obvious by the teachings of Ryu and Wold, as presented and referenced by the Examiner. Accordingly, it is submitted that the Examiner's rejection of claims 1-2, 11-12, and 21 based upon 35 U.S.C. §103(a) has been overcome by the present remarks and withdrawal thereof is respectfully requested.

§103 Rejection of Claims 3-10, 13-20, 26-28, and 33-35

In Section 3 of the Final Office Action, the Examiner has rejected claims 3-10, 13-20, 26-28, and 33-35 under 35 U.S.C. §103(a) as being unpatentable over Ryu in view of Wold and further in view Kavner (US Patent 6,430,607; hereinafter referred to as "Kavner"). This rejection is respectfully traversed below.

Claims 3-10 depend from claim 1. As discussed above, it is submitted that the rejection of claim 1 has been overcome. Therefore, it is respectfully submitted that the rejection of claims 3-10 has also been overcome through the dependence of claims 3-10 on claim 1.

Claims 13-20 depend from claim 11. As discussed above, it is submitted that the rejection of claim 11 has been overcome. Therefore, it is respectfully submitted that the rejection of claims 13-20 has also been overcome through the dependence of claims 13-20 on claim 11.

In addition, regarding claim 5, as shown above, claim 5 has been amended and calls for:

5. A data processing apparatus according to Claim 4, further comprising means for checking, when a predetermined object is added to said composite object, whether a sequential execution relation exists between said predetermined object and all of component objects making up said composite object, and means for adding said predetermined object after the sequential execution relation has been confirmed such that said predetermined object is not added to said composite object if said sequential execution relation does not exist between said predetermined object and all of component objects making up said composite object.

Accordingly, in one aspect of claim 5, when a predetermined object is added to the composite object, the means for checking checks whether a sequential execution relation exists between the predetermined object and all of the component objects making up the composite object. The means for adding adds the predetermined object after confirming the sequential execution relation. The means for adding does not add the predetermined object to the composite object if the sequential execution relation does not exist between the predetermined object and all of component objects making up the composite object.

Considering the Examiner's rejection of claim 5 in Section 3 of the Final Office Action as applied to amended claim 5, it does not appear that the arguments presented by the Examiner in rejecting claim 5 over Ryu, Wold, and Kavner in section 3 of the Final Office Action establish how the cited combination of Ryu, Wold, and Kavner show or suggest amended claim 5. In Section 3, the Examiner states (references omitted): "Ryu teaches checking, the sequential execution relation, component objects." It does not appear that this argument addresses how the cited references show adding a predetermined object to a composite object after confirming that the predetermined object has a sequential execution relation with all of the component objects of the composite object, as called for in claim 5. This argument does not appear to address adding

an object to a composite object or confirmation of a relation at all. Furthermore, this argument does not appear to explain how the cited references show that the predetermined object is not added to the composite object if the sequential execution relation does not exist between the predetermined object and all the component objects of the composite object, as called for in amended claim 5. Without further explanation by the Examiner, it is submitted that the Examiner has not established how the cited combination of Ryu, Wold, and Kavner show or suggest this aspect of claim 5.

Accordingly, it does not appear that the Examiner has established how the cited combination of Ryu, Wold, and Kavner, as referenced by the Examiner in rejecting claim 5, shows or suggests at least these aspects of amended claim 5, and so it is submitted that the Examiner has not established how the cited combination of Ryu, Wold, and Kavner shows or suggests amended claim 5 as a whole. Claim 6 depends from claim 5, and it is also submitted that the Examiner has not established how the cited combination of Ryu, Wold, and Kavner shows or suggests claim 6, through its dependence on claim 5. Similar arguments apply to claim 15, and so to claim 16 that depends from claim 15.

In addition, regarding claim 6, as shown above, claim 6 calls for:

6. A data processing apparatus according to Claim 5, wherein the sequential execution relation is checked by means for checking the fact that at the time when a message is transmitted to said predetermined object, all of the component objects making up said composite object are not required to run in parallel to said predetermined object, means for checking the fact that at the time when said predetermined object transmits a message to one of the component objects making up said composite object, the one component object is never already under processing of another message, and means for checking the fact that at the time when said predetermined object receives a message from one of the component objects making up said composite object, said

predetermined object is never already under processing of another message.

Accordingly, in one aspect of claim 6, the sequential execution relation is checked using three checks: (1) that at the time when a message is transmitted to the predetermined object, all of the component objects making up the composite object are not required to run in parallel to the predetermined object; (2) that at the time when the predetermined object transmits a message to one of the component objects making up the composite object, the one component object is never already under processing of another message; and (3) that at the time when the predetermined object receives a message from one of the component objects making up the composite object, the predetermined object is never already under processing of another message.

It does not appear that the arguments presented by the Examiner in rejecting claim 6 over Ryu, Wold, and Kavner in section 3 of the Final Office Action establish how the cited combination of Ryu, Wold, and Kavner show or suggest claim 6. In Section 3, the Examiner states (references omitted): "Ryu teaches time, the component object, in parallel/processing of another message" referring to Ryu at column 8, lines 1-3. This passage of Ryu states: "... time movements in the real world 400 and indicates whether or not to permit parallel processing of a plurality of sessions. The correspondence been the procedural world (information ...". It is submitted that the Examiner has not explained how this argument and reference show claim 6. It does not appear that this argument addresses how the cited references show the three checks called for in claim 6. Without further explanation by the Examiner, it is submitted that the Examiner has not established how the cited combination of Ryu, Wold, and Kavner show or suggest this aspect of claim 6.

Accordingly, it does not appear that the Examiner has established how the cited combination of Ryu, Wold, and Kavner, as referenced by the Examiner in rejecting claim 6, shows or suggests at least these aspects of claim 6, and so it is submitted that the Examiner has not established how the cited combination of Ryu, Wold, and Kavner shows or suggests claim 6 as a whole. Similar arguments apply to claim 16.

Claims 26-28 depend from claim 22. The Examiner has rejected claim 26 using the same rejection as for claim 6. Claim 6 depends from claim 1 while claim 26 depends from claim 22. The Examiner has not rejected claim 22 using the same rejection as in rejecting claim 1. Therefore, it is submitted that the rejection of claim 6 does not apply to claim 26.

The Examiner has rejected claim 27 using the same rejection as for claim 10. Claim 10 depends from claim 1 while claim 27 depends from claim 22. The Examiner has not rejected claim 22 using the same rejection as in rejecting claim 1. Therefore, it is submitted that the rejection of claim 10 does not apply to claim 27.

The Examiner has rejected claim 28 using the same rejection as for claim 15, and uses the same rejection to reject claim 15 as for claim 5. Claim 15 depends from claim 11 and claim 5 depends from claim 1, while claim 28 depends from claim 22. The Examiner has not rejected claim 22 using the same rejection as in rejecting claim 1 of claim 11. Therefore, it is submitted that the rejection of claim 15 does not apply to claim 28.

Furthermore, as discussed below, it is submitted that the rejection of claim 22 has been overcome. Therefore, it is respectfully submitted that the rejection of claims 26-28 has also been overcome through the dependence of claims 26-28 on claim 22.

In addition, regarding claim 26, as shown above, claim 26 calls for:

26. A data processing apparatus according to Claim 22, wherein when constituting a composite component from a plurality of component objects, said object constituting means constitutes the composite component upon satisfying of both a condition that at the time when a message is transmitted from one component object to another one of the component objects making up the composite object including the one component object, the two component objects are not required to run in parallel, and a condition that at the time when a message is transmitted from one component object to another one of the component objects making up the composite object including the one component object, the component object on the message receiving side is never under processing of another message.

Accordingly, in one aspect of claim 26, the object constituting means constitutes the composite object upon satisfying both of two conditions: (1) that at the time when a message is transmitted from one component object to another one of the component objects making up the composite object including the one component object, the two component objects are not required to run in parallel; and (2) that at the time when a message is transmitted from one component object to another one of the component objects making up the composite object including the one component object, the component object on the message receiving side is never under processing of another message. Therefore, the object constituting means does not constitute the composite object if these two conditions are not met.

As noted above, the Examiner has rejected claim 26 using the same rejection as for claim 6. It does not appear that the arguments presented by the Examiner in rejecting claim 6 over Ryu, Wold, and Kavner in section 3 of the Final Office Action establish how the cited combination of Ryu, Wold, and Kavner show or suggest claim 26. As discussed above, in Section 3, the Examiner states in rejecting claim 6 (references omitted): "Ryu teaches time, the component object, in parallel/processing of another message" referring to Ryu at column 8, lines 1-3. This passage of Ryu states: "... time movements in the real world 400 and indicates

whether or not to permit parallel processing of a plurality of sessions. The correspondence been the procedural world (information ...” It is submitted that the Examiner has not explained how this argument and reference show claim 26. It does not appear that this argument addresses how the cited references show the two conditions called for in claim 26. It does not appear that this argument addresses how the cited references show that an object constituting means does not constitute a composite object unless these two conditions are met, as called for in claim 26. Without further explanation by the Examiner, it is submitted that the Examiner has not established how the cited combination of Ryu, Wold, and Kavner show or suggest this aspect of claim 26.

Accordingly, it does not appear that the Examiner has established how the cited combination of Ryu, Wold, and Kavner, as referenced by the Examiner in rejecting claim 26, shows or suggests at least these aspects of claim 26, and so it is submitted that the Examiner has not established how the cited combination of Ryu, Wold, and Kavner shows or suggests claim 26 as a whole. Similar arguments apply to claim 33.

Claims 33-35 depend from claim 29. The Examiner has rejected claim 33 using the same rejection as for claim 26 and uses the same rejection to reject claim 26 as for claim 6. Claim 6 depends from claim 1 while claim 33 depends from claim 29. The Examiner has not rejected claim 29 using the same rejection as in rejecting claim 1. Therefore, it is submitted that the rejection of claim 6 does not apply to claim 33.

The Examiner has rejected claim 34 using the same rejection as for claim 27 and uses the same rejection to reject claim 27 as for claim 10. Claim 10 depends from claim 1 while claim 34 depends from claim 29. The Examiner has not rejected claim 29 using the same rejection as in

rejecting claim 1. Therefore, it is submitted that the rejection of claim 10 does not apply to claim 34.

The Examiner has rejected claim 35 using the same rejection as for claim 28 and uses the same rejection to reject claim 28 as for claim 15. The Examiner uses the same rejection to reject claim 15 as for claim 5. Claim 15 depends from claim 11 and claim 5 depends from claim 1, while claim 35 depends from claim 29. The Examiner has not rejected claim 29 using the same rejection as in rejecting claim 1 of claim 11. Therefore, it is submitted that the rejection of claim 15 does not apply to claim 35.

Furthermore, as discussed below, it is submitted that the rejection of claim 29 has been overcome. Therefore, it is respectfully submitted that the rejection of claims 33-35 has also been overcome through the dependence of claims 33-35 on claim 29.

Based upon the foregoing, it is submitted that claims 3-10, 13-20, 26-28, and 33-35 are not anticipated by nor rendered obvious by the teachings of Ryu, Wold, and Kavner, as presented and referenced by the Examiner. Accordingly, it is submitted that the Examiner's rejection of claims 3-10, 13-20, 26-28, and 33-35 based upon 35 U.S.C. §103(a) has been overcome by the present remarks and withdrawal thereof is respectfully requested.

§103 Rejection of Claims 22-25, 29-32, and 36

In Section 4 of the Final Office Action, the Examiner has rejected claims 22-25, 29-32, and 36 under 35 U.S.C. §103(a) as being unpatentable over Ryu in view of Kavner. This rejection is respectfully traversed below.

Regarding claim 22, as shown above, claim 22 calls for:

22. A data processing apparatus for executing an object-oriented operating system, said data processing apparatus comprising:
 object constituting means for constituting objects, among which messages are communicated, by any of a composite object made up of one or more component objects and a standard object that is an object other than a composite object;
 identifier setting means for attaching an identifier to each of the standard object and the component objects constituted by said object constituting means so that each standard object and each component object are referenced from any object; and
 execution thread control means for executing one composite object by one execution thread for the composite object included in the objects constituted by said object constituting means, said execution thread being shared by each component object of the composite object.

Accordingly, in one aspect of claim 22, the execution thread control means executes the composite object using one execution thread. The execution thread is shared by each component object of the composite object.

It does not appear that the arguments presented by the Examiner in rejecting claim 22 over Ryu and Kavner in section 4 of the Final Office Action establish how the cited combination of Ryu and Kavner shows or suggests claim 22. In Section 4, the Examiner states: "Ryu does not teach a thread for execution processing. However, Kavner teaches the same client thread executing on clients process 102/thread of execution." On page 8 of the Office Action, the Examiner states: "Kavner' reference teaches the processor of client and server have plurality applications which transfer messages by using the shared thread." It does not appear that these arguments explain how the cited references show claim 22. As discussed above with respect to claim 1, even assuming for the sake of argument that the referenced portions of Kavner show multiple clients sharing a thread, it is submitted that multiple clients are not the same as multiple component objects of a composite object. Accordingly, it does not appear that the Examiner has

explained how the cited portions of Ryu and Kavner address that not only is a thread shared but that the shared thread is shared by the component objects of a composite object, as called for in claim 22. Without further explanation by the Examiner, it is submitted that the Examiner has not established how the cited combination of Ryu and Kavner show or suggest this aspect of claim 22.

Accordingly, it does not appear that the Examiner has established how the cited combination of Ryu and Kavner, as referenced by the Examiner in rejecting claim 22 shows or suggests at least these aspects of claim 22, and so it is submitted that the Examiner has not established how the cited combination of Ryu and Kavner shows or suggests claim 22 as a whole. Claims 23-28 depend from claim 22, and it is also submitted that the Examiner has not established how the cited combination of Ryu and Kavner shows or suggests claims 23-28, through their dependence on claim 22. Similar arguments apply to claims 29 and 36, and so to claims 30-35 that depend from claim 29.

Based upon the foregoing, it is submitted that claims 22-25, 29-32, and 36 are not anticipated by nor rendered obvious by the teachings of Ryu and Kavner, as presented and referenced by the Examiner. Accordingly, it is submitted that the Examiner's rejection of claims 22-25, 29-32, and 36 based upon 35 U.S.C. §103(a) has been overcome by the present remarks and withdrawal thereof is respectfully requested.

§103 Rejection of Claims 37 and 38

In Section 5 of the Final Office Action, the Examiner has rejected claims 37 and 38 under 35 U.S.C. §103(a) as being unpatentable over Ryu in view of Wold and further in view of Marc.

H. Brown (article entitled "Distributed Active Objects"; hereinafter referred to as "Brown").

This rejection is respectfully traversed below.

Claim 37 depends from claim 1. As discussed above, it is submitted that the rejection of claim 1 has been overcome. Therefore, it is respectfully submitted that the rejection of claim 37 has also been overcome through the dependence of claim 37 on claim 1.

Claim 38 depends from claim 11. As discussed above, it is submitted that the rejection of claim 11 has been overcome. Therefore, it is respectfully submitted that the rejection of claim 38 has also been overcome through the dependence of claim 38 on claim 11.

Based upon the foregoing, it is submitted that claims 37 and 38 are not anticipated by nor rendered obvious by the teachings of Ryu, Wold, and Brown, as presented and referenced by the Examiner. Accordingly, it is submitted that the Examiner's rejection of claims 37 and 38 based upon 35 U.S.C. §103(a) has been overcome by the present remarks and withdrawal thereof is respectfully requested.

Conclusion

In view of the foregoing, entry of this amendment, and the allowance of this application with claims 1-38 is respectfully solicited.

In regard to the claims amended herein and throughout the prosecution of this application, it is submitted that these claims, as originally presented, are patentably distinct over the prior art of record, and that these claims were in full compliance with the requirements of 35 U.S.C. §112. Changes to these claims, as presented herein, are not made for the purpose of patentability within the meaning of 35 U.S.C. §§101, 102, 103 or 112. Rather, these changes are

made simply for clarification and to round out the scope of protection to which Applicants are entitled.

In the event that additional cooperation in this case may be helpful to complete its prosecution, the Examiner is cordially invited to contact Applicants' representative at the telephone number written below.

The Commissioner is hereby authorized to charge any insufficient fees or credit any overpayment associated with the above-identified application to Deposit Account 50-0320.

Respectfully submitted,

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